FEBRUARY, 1909 NUMBER 70

The University of North Carolina

RECORD

The School of Medicine

PUBLISHED BY THE UNIVERSITY
ENTERED AS SECOND CLASS MATTER AT THE POSTOFFICE
AT CHAPEL HILL, N. C.

THE UNIVERSITY PRESS
CHAPEL HILL

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THE UNIVERSITY RECORD

Number 70 Fifty Cents a Year February, 1909

THE SCHOOL OF MEDICINE

Faculty at Chapel Hill

FRANCIS PRESTON VENABLE, PH.D., D.SC., LL.D., PRESIDENT.

ISAAC HALL MANNING, M.D., *Dean of the School at Chapel Hill and Professor of Physiology.*

CHARLES STAPLES MANGUM, A.B., M.D., *Professor of Anatomy.*

WILLIAM DEBERNIERE MACNIDER, M.D., *Professor of Pharmacology and Bacteriology.*

DAVID HOUGH DOLLEY, A.M., M.D., *Professor of Histology and Pathology.*

HENRY VAN PETERS WILSON, PH.D., *Professor of Zoology.*

EDWARD VERNON HOWELL, A.B., PH.G., *Professor of Pharmacy.*

CHARLES HOLMES HERTY, PH.D., *Smith Professor of General and Industrial Chemistry.*

WILLIAM CHAMBERS COKER, PH.D., *Professor of Botany.*

JAMES EDWARD LATTA, A.M., *Professor of Physics.*

ANDREW HENRY PATTERSON, A.M., *Professor of Physics.*

JAMES EDWARD MILLS, PH.D., *Associate Professor of Physical Chemistry.*

ALVIN SAWYER WHEELER, PH.D., *Associate Professor of Organic Chemistry.*

ROBERT BAKER LAWSON, M.D., *Associate Professor of Anatomy.*

ROYALL OSCAR EUGENE DAVIS, PH.D., *Instructor in Chemistry.*

THOMAS JOSEPH MCMANIS, *Instructor in Physics.*

WILLIAM RUFUS EDMONDS, *Assistant in Physics.*

BENJAMIN WALTON JONES, *Assistant in Physics.*

VINCENT MELANCHTHON MONTSINGER, *Assistant in Physics.*

THOMAS CLEVELAND KERNS, A.B., *Assistant in Bacteriology.*

EUGENE CLARENCE JUDD, *Assistant in Anatomy.*

ROBERT LEE PAYNE, *Assistant in Anatomy.*
CHARLES STEWARD FLAGLER, *Assistant in Histology.*
WILLIAM PICARD JACOCKS, A.M., *Assistant in Histology.*
STROUD JORDAN, M.S., *Assistant in Chemistry.*
DUNCAN MACRAE, *Assistant in Chemistry.*
WILLIAM MERCER OATES, *Assistant in Chemistry.*
WALLACE HEADEN STROWD, *Assistant in Chemistry.*
CLEVELAND FANE KIRKPATRICK, *Assistant in Zoology.*
ELDEN BAYLEY, *Assistant in Botany.*
JOHN GROVER BEARD, *Assistant in Pharmacy.*

Faculty at Raleigh

HUBERT ASHLEY ROYSTER, A.B., M.D., *Dean of the School at Raleigh and Professor of Gynecology.*

WISCONSIN ILLINOIS ROYSTER, M.D., *Professor of Medicine.*
AUGUSTUS WASHINGTON KNOX, M.D., *Professor of Surgery.*
RICHARD HENRY LEWIS, A.B., M.D., *Professor of Diseases of the Eye and of General Hygiene.*
KEMP PLUMMER BATTLE, JR., A.B., M.D., *Professor of the Diseases of the Ear, Nose, and Throat.*
HENRY MCKEE TUCKER, M.D., *Professor of Obstetrics.*
ANDREW WATSON GOODWIN, M.D., *Professor of the Diseases of the Skin and of the Genito-Urinary System.*
JAMES MCKEE, M.D., *Clinical Professor of Mental and Nervous Diseases.*
JAMES WILLIAM MCGEE, JR., M.D., *Professor of Diseases of Children.*
ROBERT SHERWOOD MCGEACHY, M.D., *Instructor in Therapeutics*
WILLIAM DEBERNIERE MACNIDER, M.D., *Instructor in Medical Diagnosis.*
RALPH SANDERS STEVENS, M.D., *Demonstrator of Clinical Pathology.*
WILLIAM MONCURE, JR., M.D., *Instructor in Orthopaedic Surgery.*
CLAUDE OLIVER ABERNETHY, B.S., M.D., *Physician in Chief to the Dispensary and Demonstrator of Anaesthetics.*
WADE HAMPTON BRADDY, *Assistant Demonstrator of Clinical Pathology.*

Foundation

Instruction in medicine is given in two distinct schools, one situated at the seat of the University, Chapel Hill, and the other in the city of Raleigh.

The school at Chapel Hill offers a preparatory or "premedical" course of one year in which special attention is given to the fundamental sciences of medicine—Chemistry, Physics, and Biology—and a course in those studies which compose the first two years of the medical curriculum. The school was re-established in 1890. In 1898 it was admitted to membership in the Association of American Medical Colleges; in 1901 it was incorporated as an integral part of the University on the same footing as the graduate and other professional schools.

Owing to the absence of clinical facilities at Chapel Hill, instruction in the third and fourth years of the medical curriculum is conducted by the school at Raleigh. This school was opened in the fall of 1902. It enjoys the hospital and other clinical advantages to be found in the city. Its course is limited to the third and fourth years.

Course Leading to the Degree of Doctor of Medicine

In order to be recommended for the degree of Doctor of Medicine (M.D.), the student must have completed with credit the course outlined below. Candidates must have devoted at least four full years to the study of medicine and the fourth year, at least, must have been spent in this school, the other three in this or other approved schools of medicine.

The Curriculum

PREPARATORY OR PREMEDICAL COURSE

English 1, 3 hours	Chemistry 1, 4 hours
German A, 3 "	Chemistry 3, 2 "
Physics A, 3 "	Zoology 1, 3 "

The medical course is arranged in four sessions of nine months each as follows:

FIRST YEAR

Chemistry: Quantitative Analysis. Six hours a week until February 1: total, 96 hours.

Biological Chemistry. Nine hours a week from February 1 to the end of the term: total, 135 hours.

Anatomy: Comparative Anatomy. Six hours a week until February 1: total, 96 hours.

Human Anatomy 1: Nine hours a week throughout the year: total, 280 hours.

Microscopic Anatomy: Ten hours a week until March 1: total, 184 hours.

Embryology: Eight hours a week from March 1 to the end of the term: total, 96 hours.

Pharmacognosy and Pharmacy: six hours a week from February 1 to the end of the term: total, 90 hours.

SECOND YEAR

Physiology. Five hours a week throughout the year: total, 180 hours.

Biological Chemistry. Six hours a week until February 1: total, 96 hours.

Experimental Physiology. Five hours a week from January 1 to March 15: total, 50 hours.

Anatomy 2. Nine hours a week until February 1: total, 126 hours.

Anatomy 3. Six hours a week until January 1: total, 78 hours.

Bacteriology. Eight hours a week until February 1: total, 128 hours.

Pathology. Twelve hours a week from February 1 to the end of the term: total, 180 hours.

Pharmacology and Materia Medica. Nine hours a week from February 1 to the end of the term: total, 130 hours.

Minor Surgery and Normal Physical Diagnosis. Four hours a week from February 1 to the end of the term: total, 60 hours.

SUMMARY OF FIRST AND SECOND YEARS

Subjects	Hours.
Chemistry	327
Anatomy	860
Physiology	230
Bacteriology	128
Pathology	180
Pharmacology	130
Pharmacy	90
Minor Surgery and Physical Diagnosis	60
Total	2005 hours.

THIRD YEAR

Medicine. Three lectures and six clinic and dispensary hours a week for thirty weeks: total, 270 hours.

Surgery. Three lectures and six clinic and dispensary hours a week for thirty weeks: total, 270 hours.

Obstetrics. Two lectures and one clinic hour a week for thirty weeks: total, 90 hours.

Physical Diagnosis. One lecture and three clinic hours a week for thirty weeks: total, 120 hours.

Hygiene. One lecture a week for thirty weeks: total, 30 hours.

Clinical Pathology. Two lectures and two clinic hours a week for thirty weeks: total, 120 hours.

Therapeutics. Three lectures a week for thirty weeks: total, 90 hours.

FOURTH YEAR

Medicine. Three lectures and six clinic and dispensary hours a week for thirty weeks: total, 270 hours.

Surgery. Three lectures and six clinic and dispensary hours a week for thirty weeks: total, 270 hours.

Gynecology. One lecture and four clinic hours a week for thirty weeks: total, 150 hours.

Obstetrics: outdoor work. Total, 90 hours or more.

Pediatrics. Two lectures and one clinic hour a week for thirty weeks: total, 90 hours.

Clinical Pathology. One laboratory hour a week for thirty weeks: total, 30 hours.

Diseases of the Eye. One lecture and one clinic hour a week for thirty weeks: total, 60 hours.

Diseases of the Ear, Nose, and Throat. One lecture and one clinic hour a week for thirty weeks: total, 60 hours.

Diseases of the Skin and the Genito-Urinary System. One lecture and two clinic hours a week for thirty weeks: total, 90 hours.

Nervous and Mental Diseases. One lecture and one clinic hour a week for thirty weeks: total, 60 hours.

SUMMARY OF THIRD AND FOURTH YEARS

Subjects	Hours
Medicine, Therapeutics, and Pediatrics	720
Surgery	540
Gynecology and Obstetrics	330
Clinical Pathology and Physical Diagnosis	270
Diseases of Eye, Ear, Nose, and Throat	120
Hygiene	30
Nervous and Mental Diseases	60
Diseases of the Skin and Genito-Urinary System	90
Total	2160

THE SCHOOL AT CHAPEL HILL

ADMISSION

Candidates for admission and students already members of the School should present themselves to the President and Dean of the School for registration on *Monday*, *Tuesday*, or *Wednesday*, *September 6*, *7*, or *8*, *1909*, and *Monday* or *Tuesday*, *January 3* or *4*, *1910*.

ENTRANCE REQUIREMENTS

The requirements for admission to the premedical course are the same as for the College.

The requirements for admission into the Medical School are the satisfactory completion of one year in the University or certificates of its equivalent from an approved college. Students may be

admitted to the second year of the Medical course upon furnishing certificates of having completed the first year course in an approved Medical School, or upon passing an examination upon the subjects studied in the first year. An examination will not be allowed until the candidate furnishes a certificate of having attended eighty per cent. of the hours required in the first year at an approved Medical School.

EXPENSES

The following are the charges a term payable at the beginning of each term in September and January respectively:

Tuition	$35.00
Fee for matriculation (registration, library, infirmary, etc.)	12.50
Total	$47.50

In addition the following fees will be charged for laboratory courses a term:

Chemistry 9, $7.50; Chemistry 4A, $5.00; Chemistry 10, $5.50; Zoology 1, $3.00; Zoology 2, $5.00; Experimental Physiology and Pharmacology, $5.00; Pharmacy, $5.00; for the use of the microscope, 50c.

The laboratory fees are divided approximately equally among the four terms. The total charge in the first year is between $55.00 and $59.00 a term, in the second year between $57.50 and $58.50 a term.

Good board is furnished at Commons Hall for $10 a month and at the University Inn for $15 a month. The rent of unfurnished rooms in the dormitories ranges from seventy-five cents to $2.75 a month for each occupant. For each room a charge of $2.00 a month is made for electric light and heat.

PRIZES AND SCHOLARSHIPS

The Harris Prize. (Established in 1895). Mrs. Thomas W. Harris offers in honor of the late Dr. Thomas W. Harris, a pocket case of instruments to that student who shall make the best grade in anatomy.

THE WOOD SCHOLARSHIP. (Established 1895). Mrs. Mary Sprunt Wood, of Wilmington, has founded, in memory of her husband, the late Dr. Thomas Fanning Wood, a scholarship covering the tuition fees.

THE GENERAL PLAN OF INSTRUCTION

In the arrangement of courses, in the plan of instruction, and in equipment, the effort is made to follow modern educational ideals. The practice of Medicine has moved rapidly from the domain of empiricism to that of an exact science. The development of the microscope, the invention of instruments of precision, and the advances in clinical chemistry and pharmacology require the highest technical training and skill for their successful practical application. The current literature dealing with problems of Hygiene, Medicine, and Surgery are highly scientific and require a liberal scientific education for their application and unusual powers of analysis and judgment in the application of theories to practice.

From this has grown the necessity for extending the preliminary education and the medical curriculum, and modifying the methods of instruction. It is no longer profitable for the student with only an elementary education to pursue a medical course or to meet in competition the many more liberally educated physicians of the day. In recognition of this a preparatory or premedical course is offered in which the student begins his scientific training in the subjects of Chemistry, Physics, and Biology, which are the fundamental sciences of medicine. Having completed this course the student enters upon the study of medicine with a broader foundation and the scientific spirit developed.

In the arrangement of the courses of study in the Medical School the attempt is made to follow their natural sequence. In the first year the student devotes his time to anatomical and chemical studies: Gross Human and Comparative Anatomy, Microscopic Anatomy, Embryology, Biological Chemistry, and Pharmacy, a thorough knowledge of which is necessary to the proper appreciation of the subjects to follow. In the second year Physiology is begun and completed. Anatomy, Biological Chemistry, Toxicol-

ogy, and Bacteriology are completed in the first half of the year; Materia Medica, Pharmacology, Pathology, Normal Physical Diagnosis in the second half; so that at the expiration of the two years the student will have completed the fundamental branches of medicine, and be prepared to enter upon the study of the more practical subjects.

In the plan of instruction the laboratory method supplemented with a systematic course of lectures and demonstrations is pursued. The lectures and laboratory courses are, as far as possible, given contemporaneously, for in this way the student not only acquires technical skill, but, it is believed, will gain a more thorough grasp of the subject. When advisable the classes are divided into small sections, so that the work of each student is under the direct supervision and close observation of the instructor. Frequent oral and written quizzes and a final examination are given in each subject, the object of which is to exact systematic and continuous work. An attendance upon class of 80 per cent. and a grade of 80 in each subject is required.

The School is well equipped. It has an adequate corps of trained instructors devoting their entire time to teaching and investigating, and those directly in charge of all purely medical subjects are graduates of Medical Schools. A building containing ten rooms with a floor space of six thousand square feet and a recently erected Anatomical Laboratory have been set apart for its use. In the former the lecture rooms, the Bacteriological, Pathological, Histological, Physiological, and Pharmacological laboratories and the department library are located, all of which are well lighted and provided with modern conveniences and apparatus for the careful training of the student and the more advanced work of the instructor. The anatomical building is well equipped for dissection and the care of anatomical material. Instruction in Comparative Anatomy is given in Davie Hall and Chemistry in the chemical laboratory, both of which are described elsewhere. The University library, the gynasium, and the laboratories of all departments of the University are open to the medical students who are encouraged to avail themselves of the unusual opportunities for scientific training and literary culture.

Finally, the healthful climate of Chapel Hill, the simple life of its people, the free intercourse between student and teacher, an opportunity to share in athletics and to mingle with a large number of students pursuing other professions offer advantages which cannot be overvalued in the preparation for a professional life requiring not only technical skill, but an intimate and accurate knowledge of human nature, sympathy, and patience in the management of men.

COURSES OF INSTRUCTION

Chemistry

Professor Herty and Dr. Davis.

General Descriptive Chemistry (Chemistry 1). The elements are studied in a systematic manner. The laws governing their combination and the compounds resulting are considered with appropriate reference to their occurrence and relationships to medicine. The latter part of the course is taken up with organic chemistry. Texts: Holleman's *Analytical Chemistry;* Remsen's *Organic Chemistry.*

Associate Professor Mills.

Qualitative Analysis and Toxicology (Chemistry 9). Laboratory work with lectures. The behavior of the elements and their compounds is studied in the laboratory. Practice is given in the analysis of known and unknown mixtures. Text: Venable and Wheeler's *Qualitative Chemical Analysis* and the professor's notes.

Quantitative Analysis (Chemistry 4A). A brief course in gravimetric methods, followed by a more extended course in valemetric methods. Laboratory notes.

Professor Manning and Associate Professor Wheeler.

Biological Chemistry and Toxicolgy (Chemistry 10). This course is designed to give the student laboratory training in organic chemistry and its application to the study of physiological problems. Students will perform a series of

experiments bearing more or less directly on problems of metabolism, studying the proteins, carbohydrates, and fats, the digestive juices and their action, blood, urine, milk, and such tissues as will afford evidences of the general course of metabolic processes. They will prepare as many synthetical compounds illustrating the fundamental laws of organic chemistry as time will permit. The chemical behavior of poisons and their separation is studied in the laboratory. Each student will be required to keep a laboratory note-book. Lectures discussing the theories of physiological chemistry will be given contemporaneously with the laboratory course. Texts: Autenrieth; Haskins and McLeod; Simon.

Physics

Professor Latta.

Elementary Physics (Physics A). The fundamental facts of Physics are studied with some special attention to heat and electricity. Text-books, lectures, and experiments. Text: Carhart and Chute.

Zoology

Professor Wilson.

General Zoology (Zoology 1): an introductory course giving an outline of the classification and structure of animals, with consideration of the fundamentals of histology, embryology, and physiology, and some consideration of biological theories; lectures with laboratory work. Text: Thomson. Elective in the first year.

Comparative Anatomy of Vertebrates (Zoology 2, first half). Dissection of vertebrate types: ascidian, amphioxus, cyclostome, selachian, teleost, reptile, bird, mammal. Text: Thomson's Outlines of Zoology.

Botany

Professor Coker.

General Botany (Botany 1): an introduction to the structure and classification of plants; lectures with laboratory work. Elective in the first year.

Microscopic Anatomy

Professor Dolley, Messrs. Flagler and Jacocks.

This course is divided into three parts, as follows:

1. Histology. Stress is laid on the proper conception of the fundamental tissues, which are studied, first in section, and then in fresh or macerated preparations, apart from the consideration of organs.
2. Microscopic Anatomy of Organs (excepting the central nervous system). Sections from all organs are supplied in sufficient number to cover the finer details of structure. Fresh and preserved abattoir material is furnished along with the sections.

   Throughout the course, each student stains and mounts his own sections and is required to make specified drawings and descriptions. By means of prepared slides, loaned to each student, details requiring special technique are shown, such as elastin stains, silver nitrate impregnations, injections, etc. Including mounts of fresh tissues and blood smears, a minimum of 150 slides is prepared in the laboratory. Lectures supplement the laboratory work, but a considerable part of this time is devoted to oral and written recitations. The final examination is both written and practical, the latter consisting of two parts, the diagnosis and the written description of slides.
3. Microscopic Technique. This portion of the course is given out of schedule hours. Under supervision, each student using several methods of fixation and both celloidin and paraffin imbedding, carries 5 tissues from the raw state to the stained section, which must be approved by the instructor. Text: Bailey. Reference, Boehm-Davidoff.

Anatomy

Professor Mangum, Associate Professor Lawson, Messrs. Judd and Payne.

The method of instruction is one of dissection and demonstration supplemented by lectures. Each student is required to dis-

sect one-half of the body under the constant supervision of an instructor, who examines him daily upon the work done. Frequent practical examinations are held upon which stress is laid in order to enforce proper study of the cadaver.

1. In the First Year the lectures and demonstrations proceed by systems. The bones, the articulations, the descriptive anatomy and relations of the viscera are demonstrated to each student. During this year the student dissects one-fourth of the body.

2. In the Second Year the student finishes the dissection of the body and especial stress is laid upon topographical anatomy and the relations of anatomy to surgery. A final examination is held upon the entire subject of anatomy.

3. Neurology. Special laboratory study of the gross and microscopic anatomy of the cord and encephalon.

Text: Cunningham or Morris; Cunningham's Manual of Practical Anatomy; Whitehead's Anatomy of the Brain.

4. Vertebrate Embryology. The lectures embrace the phenomena of cell division, ovulation and impregnation, and the development of the human body to the end of the foetal stage. In the laboratory the student verifies the facts by the study of organogeny in the chick and in the pig and the foetal membranes in mammals.

Texts: Heisler; Marshall; Minot's *Laboratory Text*.

Physiology

Professor MANNING.

This course consists of lectures and laboratory work. In the lectures a brief account of general and cell physiology is given as an introduction; then follows a detailed discussion of the facts and theories of human physiology with a brief account of such experiments on the lower animals and such clinical observations and experiments as bear upon the subjects. Contemporaneously with the lectures, a laboratory course is given in which the student learns the methods of experimental physiology and performs

such experiments as will demonstrate the more obvious facts. Texts: Howell; Stewart; Porter.

Materia Medica and Pharmacology

Professor MacNider.

In this course, consisting of lectures and laboratory work, the general appearance and composition of a carefully selected number of drugs, their preparation and doses, their physiological action and the indications for their rational usage, will be studied. Emphasis will be given to the pharmacopoeal standards. In the laboratory the student demonstrates the action of the more important drugs upon the lower animals. Texts: Wood; Sollmann.

Pathology

Professor Dolley assisted by Professor MacNider.

1. Pathological Histology. General pathological processes are first studied, followed by the special pathology of the different organs and systems. Each student receives and is required to stain, mount, and study about 250 sections, and to draw or describe those designated by the instructor. In addition, rarer lesions and those requiring special technique are shown by demonstration slides, and at frequent intervals tumors are given out for diagnosis. The list of sections illustrative of general pathology, particularly tumors, is made as complete as practicable, and in special pathology, cardiac and vascular diseases, typhoid fever, and the various forms of pneumonia, of cirrhosis of the liver, and of nephritis, are emphasized. The class is encouraged to study gross appearances in museum material in connection with sections. Oral and written recitations are held frequently. The examination is both written and practical. Texts: Delafield and Pruden; Stengel. Reference: American Text-Book.

Professor MacNider.

2. Bacteriology. The student learns by practical experience the methods of cultivating, staining, and identifying the

principal bacteria, the pathological significance of which is explained by lectures and demonstration by inoculation of animals. In this way the chief bacteria are learned. The necessary manipulations are all carried on by the student, who thus obtains a useful practical knowledge of the subject. Text: Muir and Ritchie.

Minor Surgery and Physical Diagnosis

Professor MacNider.

The class practices the application of bandages, learns the modern methods of dressing wounds. A short course in Physical Diagnosis is given. Text: Davis on Bandaging.

Pharmacy

Professor Howell.

The course in Pharmacy will consist in laboratory work supplemented by lectures. The student will have an opportunity to study the crude drugs and their official prescriptions and doses, and to familiarize himself with pharmaceutical methods in the preparation of official drugs, in writing and compounding prescriptions.

THE SCHOOL AT RALEIGH

LOCATION AND FACILITIES

The advantages afforded by the city of Raleigh for the advanced work of the University Medical School are numerous. It is the most accessible of the State's larger cities and has already become one of its educational centres. Comprising, with the suburbs, a population of 25,000, it offers clinical facilities second to none in North Carolina. Three hospitals admit students of medicine for instruction. These hospitals are attended by the Faculty of the Medical School and special care is given to individual teaching with the varied material found in them. Besides these hospitals,

there are available many public institutions which furnish valuable privileges to the students of the University.

ADMISSION

Students will be admitted to the Medical School at Raleigh upon completion of the preparatory two years' course at Chapel Hill, or its equivalent. Preliminary examinations will be held if deemed necessary.

Students may be admitted to advanced standing who present evidence of having fulfilled the requirements of this school with respect to preliminary education, and of having completed at accredited medical schools the courses required in the preceding years.

REGISTRATION

Students should present themselves to the Dean for registration on *Monday*, *Tuesday*, or *Wednesday*, *September*, *6*, *7*, or *8*, *1909* and on *Monday* or *Tuesday*, *January 3* or *4*, *1910*.

EXPENSES

The following are the charges a term, payable at the beginning of each term:

Tuition..... .....$37.50

At graduation a charge of $5.00 is made for the diploma. Board may be obtained in the city at prices ranging from $12.50 to $15.00 a month.

COURSES OF INSTRUCTION

Medicine

Professor W. I. Royster and Dr. MacNider.

This subject is taught by lectures, ward classes, and general clinics. Cases are assigned to students and examinations are held upon their work. History writing receives due attention.

In the third year are treated the infectious diseases, diseases of the blood and digestive system. Individual instruction is given in the methods of physical diagnosis.

In the fourth year are studied the diseases of the respiratory system, heart, and kidneys, and the general diseases. There are weekly clinics and ward classes.

Texts: Hare; Tyson.

Surgery

Professor KNOX and Dr. ABERNETHY.

In the third year are treated the principles of surgery, wounds, minor operations, and bandaging. Ward classes and dispensary work furnish ample demonstrations of the subjects described in the lectures.

The fourth year is devoted to the general practice of surgery and the major operations. A special course in anaesthetics is given to each student. At all the clinics students will be able, by personal observations at short range, to witness every step of an operation and thus familiarize themselves with the details. Text: Wyeth.

Obstetrics

Professor TUCKER.

This course is conducted by means of lectures, recitations, and clinics. Fundamental obstetric principles receive the closest attention. A number of maternity cases are available for instructing students in the management of labor and the lying-in period. Each student must have attended the prescribed number of labors before he is entitled to a diploma. Text: Hirst.

Gynecology

Professor H. A. ROYSTER.

Lectures are given covering the entire field of the diseases of women from the simplest procedure to the more serious operations. Illustrative clinics are held weekly. In many cases students are allowed to assist in the operations. Practice in pelvic examinations is given constantly to each stu-

dent, for the purpose of enabling him to make gynecological diagnoses. An abundance of material is always available. Text: Penrose.

Therapeutics

Dr. McGeachy.

The whole subject is thoroughly discussed by means of recitations and demonstrations, with constant drill on important drugs. Prescription writing. Text: Hare.

Diseases of the Eye

Professor Lewis.

This course is conducted by means of lectures with clinics and dispensary classes, and furnishes what is absolutely essential for the general practitioner. Mastery of the principles is insisted upon. An abundance of illustrative material is presented in clinics and dispensary classes. Text: May.

Diseases of the Ear, Nose, and Throat

Professor Battle.

This course consists of lectures and demonstrations with opportunities for investigating cases under direct supervision. A knowledge of these diseases is recognized as necessary for every physician. Particular care is devoted to personal demonstration. Text: Gleason.

Pediatrics

Professor McGee.

Lectures and bed-side demonstrations. Special emphasis is given to the diagnosis and treatment of the infectious diseases and to the care of infants. A large number of dispensary cases is seen. Text: Holt.

General Hygiene

Professor Lewis.

The principles and laws of hygiene and sanitation and the most approved practical methods established by modern science. A knowledge of hygiene and sanitation is very necessary for physicians in every community. Extraordi-

nary opportunities will be given for investigating the working of the State sanitary laws. Text: Egbert.

Nervous and Mental Diseases

Clinical Professor McKee.

Practical instruction is given in the principles of the subject from material furnished by one of the State's largest insane hospitals.

Diseases of the Skin and Genito-Urinary System

Professor Goodwin.

Instruction is given by means of lectures, recitations, and dispensary work. Attention to correct diagnosis is insisted upon. Modern methods are carefully studied. Texts: Walker on Skin; Keyes and Chetwood on Genito-Urinary.

Clinical Pathology

Dr. Stevens and Mr. Braddy.

Great stress is laid upon the association of laboratory technique with cases actually under observation. Examinations of blood, urine, sputum, pus, tumors, etc., are made by the student with the assistance of the demonstrators. The equipment is excellent. Text: Simon.

Orthopaedic Surgery

Dr. Moncure.

The chief aim in this course is to give a thorough knowledge of the basic principles which underlie this branch of surgery. Students are taught the application of the various bandages and apparatus, and are required to do much of the work themselves.

The City Free Dispensary

Dr. Abernethy, *Physician in Chief.*

By special arrangement, the city of Raleigh has allowed the establishment of a Free Dispensary, to which all the out-

door patients come, and when every available case is utilized as clinical material for students of medicine. Here will be found unusual privileges of personal observation. At certain times each student may conduct the dispensary work on his own account under the direction of the instructors. Senior students are graded on their work in the Dispensary.

SCHOOL OF PHARMACY

FACULTY

FRANCIS PRESTON VENABLE, PH.D., D.SC., LL.D., PRESIDENT.

EDWARD VERNON HOWELL, A.B., PH.G., *Dean and Professor of Pharmacy.*

HENRY VAN PETERS WILSON, PH.D., *Professor of Zoology.*

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WILLIAM RUFUS EDMONDS, *Assistant in Physics.*

BENJAMIN WALTON JONES, *Assistant in Physics.*

VINCENT MELANCHTHON MONTSINGER, *Assistant in Physics.*

FOUNDATION

The School of Pharmacy was established in 1897 and was opened for students in September of that year. Its location at the seat of the University assures to its students the most modern scientific instruction with all the laboratory facilities of the undergraduate department, as well as the courses of instruction in allied branches. These opportunities will meet the requirements of a large number of students who were compelled heretofore to obtain their pharmaceutical education in other states. Briefly stated, the advantages are as follows:

1. Thorough, careful, *individual* training.
2. The practical experience derived from active work in the laboratories.
3. Intimate association with the other departments of the University, to all of which the student of pharmacy has access, and the daily contact with students pursuing various branches of learning.
4. The use of the large library and reading room and the well equipped gymnasium.
5. The comparatively small cost at which a two-years' course may be obtained.
6. The length of the course, which consists of two sessions of nine months each,—nearly a fourth longer than in many of the colleges of pharmacy.

The success of the students of this School in their examinations before State boards has been very gratifying. Students of this School have been applicants before the State boards of Maryland, Pennsylvania, and North Carolina. None of the graduates of this School applying for license before State boards has failed to pass the examination.

ADMISSION

Candidates for admission into the School of Pharmacy should present themselves on the same days and at the same hours with candidates for admission into the College. For the next academic year, these days will be *Monday*, *Tuesday*, or *Wednesday*, *September 6*, *7*, or *8*, *1909*, and *Monday* or *Tuesday*, *January 3* or *4*, *1910*.

The session of the School of Pharmacy is of the same length as the College year, beginning *September 6, 1909* and ending *June 1, 1910*.

Candidates for the degree of Ph.G. must be, on entering, at least 17 years old, and must have completed a high school course of study.

The members of the School of Pharmacy enjoy all the privileges extended to other students in the University.

EXPENSES

The charges for each term are payable at the beginning of the er m. They are as follows:

Tuition	$30.00.
Registration and incidental fees	12.50.

There are additional fees as follows:

First Year

Chemistry 1 (each term)	$1.25
Physics A (each term)	.50

Second Year

Chemistry 9 (Fall term)	$ 7.50
Chemistry 10 (Spring term)	2.50
Prescription Course	10.00

The students of Pharmacy are entitled to the use of the gymnasium, the library and reading room, and, in case of sickness, to medical attention and the use of the infirmary.

Good board is furnished at Commons Hall for $10.00 a month and at the University Inn for $15.00 a month. The rent of unfurnished rooms ranges from 75 cents to $2.75 a month. For each room is made a charge of $2.00 a month for electric light and heating.

PRIZES

The Bradham Prize, offered by Mr. C. D. Bradham, of Newbern, N. C., will be given to the student making the highest general average during the two years of study.

The Gilpin Langdon Prize, offered by Messrs. Gilpin Langdon & Co., of Baltimore, Md., will be given to the student making the best line of preparations in the pharmaceutical laboratory.

Prizes will also be given:

1. For the best thesis.
2. For the best collection of native medicinal herbs.
3. For the best exhibit of chemical salts made by a second year student.
4. For the best work in the recognition of materia medica specimens.
5. To the student recognizing the largest number of pharmaceutical preparations.

EXAMINATIONS

Final examinations are held at the end of each term on the subjects embraced in the course.

Quizzes upon the different branches are held regularly. Specimen quizzes upon Materia Medica, Chemistry, and Pharmacy are held once a week, and consist in the recognition and correct writing of the official names of the specimens presented.

Students are required to make an average of 70 per cent. on all examinations and quizzes.

COURSE LEADING TO THE DEGREE OF GRADUATE OF PHARMACY

In order to be recommended for the degree of Graduate of Pharmacy (Ph.G.), the student must have completed with credit the course of study outlined below. This course extends over two sessions of nine months each. The student must have completed the work of both sessions in the School of Pharmacy of this University, or of one session (the second) here after one in some other recognized school of Pharmacy. He must obtain satisfactory marking in attendance, make a general average of 70 per cent. in the various branches, and submit a satisfactory thesis. The thesis must be an original essay embodying the results of the student's personal research in some branch of pharmacy, which he has prosecuted under the direction of the professor who assigned

him the subject. The subject of such thesis must be announced on or before February 1 to the Dean of the Faculty. On May 2 the thesis shall be read before the Dean of the School, subject to criticism and correction. The corrected and approved thesis must be handed to the Registrar in type-written form on or before May 15. It will be published at the discretion of the Dean of the School. He must also have had a practical experience of at least four years with some qualified pharmacist in a dispensing store. Satisfactory evidence on this point must be submitted to the Dean of the School, and a certificate deposited with the Registrar on or before May 15. Students who have not had the full four years' experience will be permitted to stand examinations for graduation; but their diplomas will be withheld until they shall have satisfied this requirement. Of the three years of experience required for license by the State Board of Pharmacy, the work done in the Pharmaceutical laboratory will count for one and only one.

First Year

Pharmacy 1 (5)*
Pharmacy 4 (4)
Elementary Physics A (2)
Chemistry 1 (3)

Second Year

Pharmacy 2 (5)
Pharmacy 5 (8)
Materia Medica (3)
Materia Medica and Pharmacology (5)
Chemistry 9 (3)
Chemistry 10 (3)

COURSES OF INSTRUCTION

Pharmacy

Professor HOWELL.

1. Theory and Practice of Pharmacy. The course consists of lectures upon the following subjects, with practical demonstrations and the employment of proper apparatus when-

ever necessary: metrology, comminution, heat, evaporation, distillation, sublimation; fusion, calcination, granulation, oxidation, reduction, etc.; solution of solids, liquids, and gases; deliquescence, efflorescence, etc.; colation, filtration, decolorization, clarification, precipitation, etc.; macration, expression, infusion, decoction, etc.; percolation, and study of the following: waters, syrups, honeys, glycerites, muscilages, mixtures, spirits, elixirs, liniments, collodions, tinctures, wines, vinegars, and fluid extracts. Text: Remington, *Theory and Practice of Pharmacy*. First year. *Both terms, five hours.*

2. Theory and Practice of Pharmacy. The official forms and preparations of drugs are taken up in detail. Beginning with the inorganic compounds, the salts are considered with regard to their commercial qualities and pharmaceutical uses and preparations. The organic compounds are studied, commencing with the salts of the organic acids and passing to the natural and organic compounds. Second year. *Both terms, five hours.*

3. Lectures on Pharmaceutical Botany. This course is preparatory to the study of Materia Medica, and takes up the study of the flower, the various topics of fruits, seeds, etc., and a careful study of the descriptive terms as applied to leaves, stems, and roots. Instruction is given in the gathering and proper mounting of specimens of the official herbs that grow in this vicinity. First year. *Spring term, two hours.*

4. Operative Pharmacy: a practical course with laboratory work. First year. *Both terms, four hours.*

5. Operative Pharmacy: a continuation of course 4. Second year. *Both terms, two hours.*

Materia Medica and Pharmacology

Professor Howell.

1. Materia Medica. Lectures on the geographical and botanical sources of drugs; descriptions and uses of the same,

together with their preparation and doses. Opportunity is given to the student to familiarize himself with most of the crude drugs and their preparations. Text: White and Wilcox. *Fall term, three hours.*

Professor MacNider.

2. Materia Medica and Pharmacology. This course is devoted to the study of the origin and constitution of remedial measures, their preparations and doses; and in particular, their physiological action and the indications for their rational use. Opportunity will be given to students to familiarize themselves with the more important crude drugs and their preparations. Instruction is given by means of lectures, recitations and demonstrations. The lectures intended to accompany the work in Toxicology are given as a part of the course in Materia Medica.

Physics

Professor Patterson

Elementary Physics (Physics A). The fundamental facts of Physics are studied with some special reference to heat and electricity. Text-book, lectures, and experiments. Text: Carhart and Chute. First Year. *Both terms, three hours.*

Chemistry

Professor Herty and Dr. Davis.

1. General Descriptive Chemistry. The elements are studied in a systematic manner. The laws governing their combination, and the compounds resulting, are considered with appropriate reference to their occurrence and relationships to medicine. The latter part of the course is taken up with organic chemistry. Texts: Holleman's *Inorganic Chemistry*, and Remsen's *Organic Chemistry*, supplemented by lectures and quizzes. First year. *Both terms: lectures, three hours; laboratory, two hours (fall term).*

Associate Professor Wheeler.

9. Qualitative Analysis and Toxicology: laboratory work with lectures. The behavior of the elements and their com-

pounds is studied in the laboratory. Practice is given in the analysis of known and unknown mixtures with especial reference to the detection of poisons and determination of the purity of drugs. Text: Venable and Wheeler's *Qualitative Chemical Analysis* and the instructor's notes. Second Year. *Spring term, three hours.*

OPTIONAL COURSES

The following courses are not required of students in Pharmacy, but may be elected profitably:

Elementary Physiology

Professor MacNider.

The study of physiology is begun in the spring term of the first year, during which the physiology of digestion, the digestive glands, blood, respiration, metabolism, excretion, and animal heat is considered in lectures illustrated by experiments. The study is continued in the fall term of the second year by the consideration of the physiology of the muscles and of the nervous system. During this term also the student learns the methods of experimental physiology by means of class work in the laboratory. Texts: *American Text-Book*, Stewart, or Kirke. *Both terms, three hours.*

Zoology

Professor Wilson.

General Zoology. An introductory course giving an outline of the classification and structure of animals, with consideration of the fundamentals of histology, embryology, and physiology, and some consideration of biological theories; lectures with laboratory work. Text: Thomson. *Both terms, three hours.*

Botany

Associate Professor Coker.

General introduction to Systematic Botany, with special attention to medical plants; laboratory and field work with recitations. *Spring term, three hours.*

Prescription Filling

Professor Howell.

In order that students may gain experience in prescription filling, a course in the practical everyday work of a drug store and in selling poisons and filling prescriptions is given. The prescriptions selected are those that will give the largest amount of practical experience. For this course a fee of ten dollars is required, to cover the cost of ingredients, bottles, labels, etc. *Both terms, at least two hours.*

Chemistry

Professor Herty.

Industrial Chemistry. Lectures. The application of chemistry to the arts and industries. This course includes metallurgy, glass making, pottery, (*fall term*); food, clothing, building materials, explosives, photography, etc., (*spring term*). *Three hours.*

Agricultural Chemistry. Lectures. This course includes the chemistry of the plant and the soil, and the discussion of plant food, etc. Many specimens have been collected in the Industrial Museum to illustrate this course and the preceding one.

Dr. Davis.

Quantitative Analysis and Assaying. Laboratory work. This course is intended to give the student a thorough grounding in analytical methods and manipulations. *Three hours.*

Professor Herty.

Quantitative Analysis. Laboratory work. The student in this course is led further into the study and practice of analytical methods. The work may take any special direction desired by him, fitting him to be an agricultural chemist, iron chemist, manufacturing chemist, physician, druggist, or teacher of chemistry. Encouragement is given to the student to make original researches. *Five hours.*

Mr. Eaton.

Determinative Mineralogy. Lectures with laboratory work. Dana's *Text-Book of Mineralogy*. *Both terms, two hours.*

Bacteriology

Professor MacNider.

The student learns by practical experience the methods of cultivating, staining, and identifying the principal bacteria, and their pathological significance is explained by lectures and demonstrations by inoculation of animals. In this way the chief pathogenic bacteria are studied in pure culture on the various media, after which the methods of obtaining pure culture from mixtures of bacteria are learned. The necessary manipulations are carried out by the students, who thus obtain a practical knowledge of the subject which can be gained in no other way. *Fall term, six hours.*

Students in Pharmacy have also the privilege of attending any of the regular academic courses.

THE PHARMACEUTICAL LABORATORY

OFFICERS

Edward Vernon Howell, A.B., Ph.G., Director and *Professor of Pharmacy.*

John Grover Beard, *Assistant in the Pharmaceutical Laboratory.*

The rooms of the Pharmaceutical Laboratory are admirably adapted to this purpose. They are conveniently situated on the first floor, are well lighted and well-equipped with water, electric lights, and gas. To each student is assigned a desk, provided with lock and key, and containing all the apparatus necessary for the every day work of the pharmacist. In the store room is kept a supply of materials for practical work, as well as the apparatus for the more complex operations. Ample space is provided for work at the prescription counter, where practical instruction in the compounding and dispensing of prescriptions is given.

A small deposit fee is required to cover the cost of breakage of apparatus. At the end of the session this fee will be returned, less the amount of breakage.

OTHER LABORATORIES

The laboratories of Physics, Chemistry, and Biology are open to students in Pharmacy. These laboratories are all equipped with the most approved apparatus for experimentation and illustration of lectures.

READING ROOM AND LIBRARY

The Pharmaceutical School is provided with a well selected library and with a reading room, inaugurated by the class of 1897, in which are filed a large number of medical and pharmaceutical journals.

In addition to these advantages, students of this department enjoy the privileges of the University reading room, in which are filed all the leading newspapers and magazines, and free access to the University Library, which numbers fifty thousand volumes and seventeen thousand pamphlets.